



**United States Environmental Protection Agency
Region 9 Laboratory**

1337 S. 46th Street Building 201
Richmond, CA 94804

Date: 5/27/2015

Subject: Analytical Testing Results - Project R15S69
SDG: 15146A

From: Duane James, Acting Director
EPA Region9 Laboratory
MTS-2

To: Michelle Rogow
Emergency Response Section
SFD-9-2

Attached are the results from the analysis of samples from the **Refugio State Beach Oil Spill Response** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Eugenia McNaughton at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Sea Urchin Fertilization Toxicity



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Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Michelle Rogow
Project Number: R15S69
Project: Refugio State Beach Oil Spill Response

Emergency Response Section
75 Hawthorne Street
San Francisco CA, 94105

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Reported: 05/27/15 16:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
D012-B	1505050-01	Water	05/25/15 13:27	05/26/15 08:20
D012-S	1505050-02	Water	05/25/15 13:40	05/26/15 08:20
D011-B	1505050-03	Water	05/25/15 14:34	05/26/15 08:20
D011-S	1505050-04	Water	05/25/15 14:45	05/26/15 08:20
D002-B	1505050-05	Water	05/25/15 15:44	05/26/15 08:20
D002-S	1505050-06	Water	05/25/15 15:55	05/26/15 08:20
D001-B	1505050-07	Water	05/25/15 16:32	05/26/15 08:20
D001-S	1505050-08	Water	05/25/15 16:44	05/26/15 08:20
RFO-052515-001-17	1505050-09	Water	05/25/15 10:20	05/26/15 08:20
RFO-052515-001-00	1505050-10	Water	05/25/15 09:20	05/26/15 08:20

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Work Order(s)

1505050

Requested analyses were for sea urchin fertilization toxicity tests using *Strongylocentrotus purpuratus* (purple sea urchins) following Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms EPA/600/R-95/136. USEPA Region 9 Laboratory SOP #1001, SEA URCHIN (*Strongylocentrotus purpuratus*) AND SAND DOLLAR (*Dendraster excentricus*) FERTILIZATION TOXICITY TEST, was followed for the toxicity tests.

A concurrent reference toxicity test was conducted for quality control as specified in the method Statistical analyses were conducted using the CETIS statistical database program, version 1.022 for the reference toxicity test, and the Test of Significant Toxicity version 1.8 for comparisons between the samples and control and/or reference sites.

All samples were run as 100% sample with no dilution. Comparisons were made between the sample and laboratory control seawater for all samples using the Test of Significant Toxicity (TST) approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). All samples passed the TST and were non-toxic when compared to the laboratory control seawater. All samples collected at the surface sites and passed and were non-toxic when compared to the surface reference site using the TST approach. All samples collected at the bottom sites passed and were non-toxic when compared to the bottom reference site using the TST approach.

All QA/QC criteria were met.



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Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1505050-01							Water - Sampled: 05/25/15 13:27		
Sample ID: D012-B							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-02							Water - Sampled: 05/25/15 13:40		
Sample ID: D012-S							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-03							Water - Sampled: 05/25/15 14:34		
Sample ID: D011-B							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-04							Water - Sampled: 05/25/15 14:45		
Sample ID: D011-S							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-05							Water - Sampled: 05/25/15 15:44		
Sample ID: D002-B							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-06							Water - Sampled: 05/25/15 15:55		
Sample ID: D002-S							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-07							Water - Sampled: 05/25/15 16:32		
Sample ID: D001-B							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-08							Water - Sampled: 05/25/15 16:44		
Sample ID: D001-S							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-09							Water - Sampled: 05/25/15 10:20		
Sample ID: RFO-052515-001-17							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001
Lab ID: 1505050-10							Water - Sampled: 05/25/15 09:20		
Sample ID: RFO-052515-001-00							Aquatic Toxicity Test by EPA Method		
EC 50		Pass			%	B15E112	05/26/15	05/26/15	TOX/SOP1001

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B15E112 - - General Biology - Toxicity, Sea Urchin Fertilization							Prepared: 05/27/15 Analyzed: 05/26/15			
Reference (B15E112-SRM1)							Aquatic Toxicity Test by EPA Methods - Quality Control			
EC 50	21			ppb	34.0		61	5.6-194.5		



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Qualifiers and Comments

Pass Pass

U Not Detected

NR Not Reported

RE1, RE2, etc: Result is from a sample re-analysis.